

SBP01 Bab 13 - Kimia Konsumer Dan Industri

(b) Diagram 1.2 shows the structural formulae of two types of cleaning agents.
Rajah 1.2 menunjukkan formula struktur bagi dua jenis agen pencuci.

Cleaning agent A <i>Agen pencuci A</i>	Cleaning agent B <i>Agen pencuci B</i>
$\text{CH}_3(\text{CH}_2)_{14}-\overset{\text{O}}{\parallel}{\text{C}}-\text{ONa}$	$\text{CH}_3(\text{CH}_2)_{10}\text{CH}_2\text{O}-\overset{\text{O}}{\parallel}{\underset{\text{O}}{\parallel}}{\text{S}}-\text{ONa}$

Diagram 1.2
Rajah 1.2

(i) Based on Diagram I. 2, state the cleaning agent produced by saponification process.
Berdasarkan Rajah 1.2, nyatakan agen pencuci yang dihasilkan melalui proses saponifikasi.

..... [1M]

(ii) State cleaning agent which is more effective in hard water. Give a reason
Nyatakan agen pencuci manakah yang lebih berkesan dalam air liat. Berikan satu sebab.

.....
 [2M]

(iii) Which cleaning agent is more environmentally friendly? Give a reason.
Agen pencuci yang manakah lebih mesra alam sekitar? Berikan satu sebab.

.....
 [2M]

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(b) Table 2 shows two substances which are very useful in a daily life.

Jadual 2 menunjukkan dua bahan yang sangat berguna dalam kehidupan seharian.

Substance <i>Bahan</i>	Example <i>Contoh</i>	Component <i>Komponen</i>
P	Reinforced concrete <i>Konkrit yang diperkukuh</i>	Cement, sand, pebble and steel <i>Simen, pasir, batu dan keluli</i>
Polymer <i>Polimer</i>	R	Chloroethane <i>Kloroetana</i>

Table 2/ *Jadual 2*

(ii) Draw structural formula of polymer R.

Lukis formula struktur polimer R.

[1M]

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(b) Diagram 3.2 shows a part of the cleansing action of soap particles on a grease stained cloth.

Rajah 3.2 menunjukkan satu bahagian tindakan pencucian oleh zarah sabun ke atas kotoran bergris pada kain.

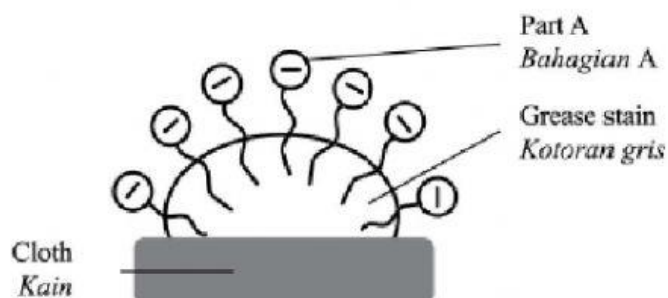


Diagram 3.2
Rajah 3.2

(i) Name part A of the soap particles.

Namakan bahagian A zarah sabun.

..... [1M]

(ii) Diagram 3.3 shows the boys are washing their clothes near a well. They are using soap to clean the oil stain on their clothes. The well water is hard water.

Rajah 3.3 menunjukkan budak lelaki sedang mencuci baju mereka berdekatan dengan telaga. Mereka menggunakan sabun untuk membersihkan kotoran berminyak pada baju mereka. Air telaga ini merupakan air liat.



Diagram 3.3/ Rajah 3.3

Explain the effectiveness of cleansing action of soap particles on the oil stains.
Terangkan keberkesanan tindakan pencucian zarah sabun ke atas kotoran berminyak.

.....
.....
..... [2M]

(iii) Suggest one cleaning agent which can clean more effective with well water to the boys in Diagram 3.3.
Cadangkan satu agen pencuci yang boleh mencuci dengan lebih berkesan kepada budak lelaki dalam Rajah 3.3.

..... [1M]

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Diagram 1 shows the apparatus set-up for preparing soap.

Rajah 1 menunjukkan susunan radas untuk menyediakan sabun.

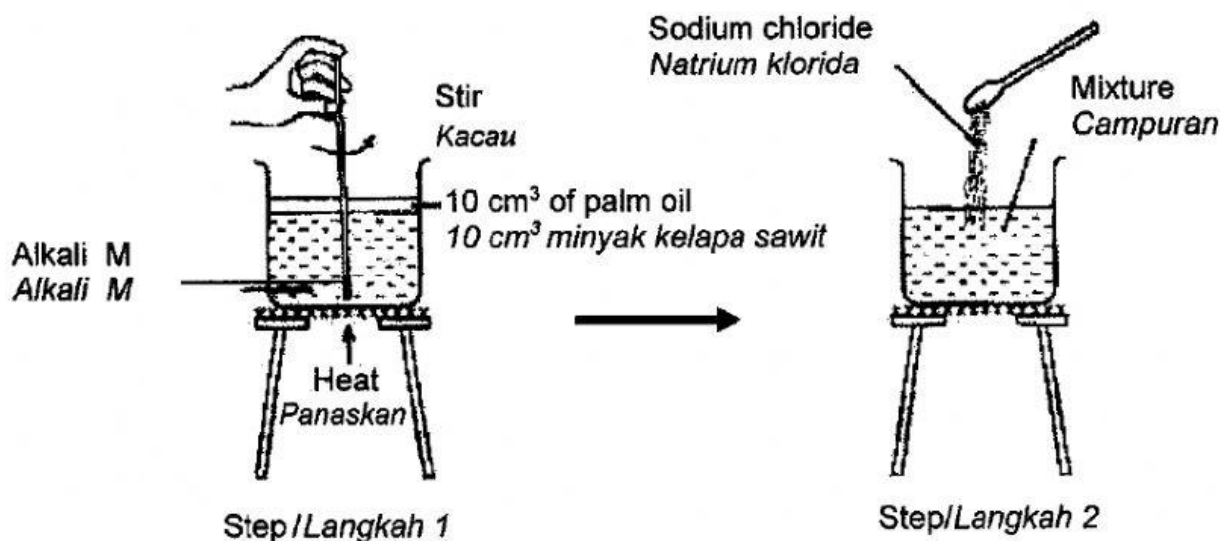


Diagram 1 / Rajah 1

(a) State the name of the process to prepare soap.

Nyatakan nama proses untuk menyediakan sabun.

..... [1M]

(b) A student wants to prepare sodium palmitate soap. State the name of alkali M used in step 1.

Seorang pelajar ingin menyediakan sabun natrium palmitat. Nyatakan nama alkali M yang digunakan dalam langkah 1.

..... [1M]

(c) State why sodium chloride is added to the mixture.

Nyatakan mengapa natrium klorida ditambah kepada campuran itu.

..... [1M]

(d) Soap is not effective in hard water.

Sabun tidak berkesan dalam air liat

(i) State two ions contained in hard water.

Nyatakan dua ion yang terdapat dalam air liat

..... [2M]

(ii) Explain why soap is not effective in hard water.

Terangkan mengapa sabun tidak berkesan dalam air liat

.....

..... [2M]

(iii) State other effective cleansing agent in the hard water. Give a reason.
Nyatakan agen pencuci lain yang berkesan dalam air liat. Berikan satu sebab.

.....

..... [2M]

JohorSet1-02 Bab 13 - Kimia Konsumer Dan Industri

(a) A student wants to make soap in a laboratory. He uses the materials shown in Diagram 2.1.

Seorang pelajar hendak membuat sabun dalam makmal, Beliau menggunakan bahan-bahan yang ditunjukkan dalam Rajah 2.1.



Diagram 2.1 / Rajah 2.1

The student pours 50 cm^3 of 5 mol dm^{-3} alkaline solution into 10 cm^3 of vegetable oil. The mixture was heated for about 20 minutes. Then, about 50 cm^3 of water was added followed by two spatula of sodium chloride salt. The mixture was stirred with glass rod and then allowed to cool. Soap was formed.

Pelajar itu menuangkan 50 cm^3 larutan alkali 5 mol dm^{-3} ke dalam 10 cm^3 minyak sayuran. Campuran dipanaskan selama kira-kira 20 minit. Kemudian 50 cm^3 air ditambahkan diikuti dengan dua spatula garam natrium klorida. Campuran dikacau dengan rod kaca kemudian dibiarkan menyejuk. Sabun terbentuk.

(i) Name the process that took place when the mixture of vegetable oil and alkaline solution was heated.

Namakan proses yang terlibat apabila campuran minyak sayuran dan larutan alkali dipanaskan.

..... [1M]

(ii) Suggest another substance that can replace concentrated sodium hydroxide to make milder soap.

Cadangkan bahan lain yang boleh menggantikan natrium hidroksida pekat untuk membentuk sabun yang lebih lembut.

..... [1M]

(iii) What is the aim of adding sodium chloride salt during the reaction?

Apakah tujuan menambahkan garam natrium klorida ketika tindak balas?

..... [1M]

(b) Diagram 2.2 below show two types of molecule for different cleaning agents, X and Y.
Rajah 2.2 di bawah menunjukkan dua molekul bagi agen pencuci yang berlainan, X dan Y:

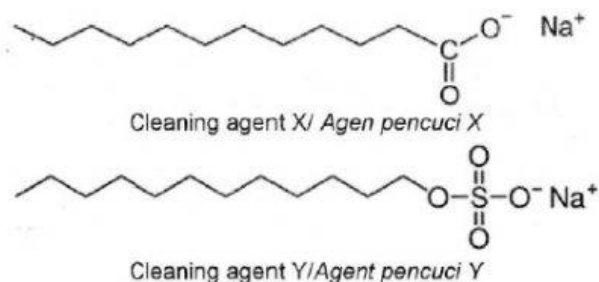


Diagram 2.2 / Rajah 2.2

(i) Name the cleaning agents X and Y:

Namakan agen pencuci X dan Y:

X:

Y: [2M]

[2 marks/2 markah]

(ii) Give one advantage of cleaning agent Y compared to X.

Berikan satu kelebihan agen pencuci Y berbanding X

..... [1M]

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Table 6 shows information for two different type of cleaning agents.

Jadual 6 menunjukkan maklumat mengenai dua jenis agen pencuci.

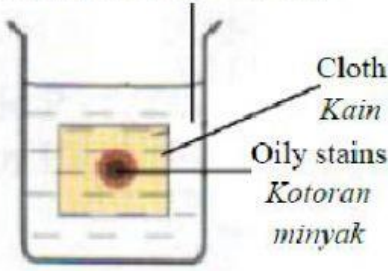
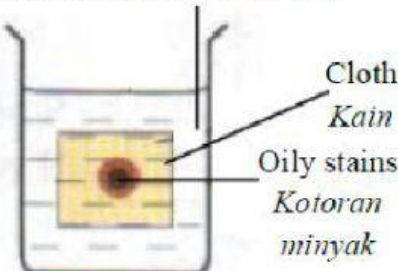
Types of cleaning agents <i>Jenis agen pencuci</i>	Cleaning agent X <i>Agen pencuci X</i>	Cleaning agent Y <i>Agen pencuci Y</i>
Molecular formula <i>Formula molekul</i>	$\text{CH}_3(\text{CH}_2)_{14}\text{COONa}$	$\text{CH}_3(\text{CH}_2)_{11}\text{OSO}_3\text{Na}$
Experiment <i>Eksperimen</i>	Cleaning agent X + hard water <i>Agen pencuci X + air liat</i> 	Cleaning agent Y + hard water <i>Agen pencuci Y + air liat</i> 

Table 6 / Jadual 6

(a) The clothes with oily stains are soaked in a cleaning agent using hard water.
Kain dengan kesan kotoran minyak direndam di dalam agen pencuci dengan menggunakan air liat.

(i) What is meant by hard water?
Apakah yang dimaksudkan dengan air liat.

..... [1M]

(ii) Write the chemical formula of anion in cleaning agent X or Y when dissolve in water.
Tuliskan formula kimia bagi anion pada agen pencuci X atau Y apabila dilarutkan dalam air.

..... [1M]

(iii) Choose which cleaning agent that dissolve in hard water to form scum.
Pilih agen pencuci yang manakah akan membentuk kekat di dalm air liat.

..... [1M]

(iv) Write ionic equation for the formation of scum.
Tuliskan persamaan ion bagi pembentukan kekat.

..... [2M]

(b) Compare cleaning agent X and Y in terms of :
Bandingkan agen pencuci X dan Y dari segi :

Effectiveness in cleansing action :
Keberkesanan tindakan pencucian

Sumber
Source :